REMARKS

By this Amendment, claims 35, 52-54, 57-60 and 68 are amended. Claims 36-51, 55-56 and 61-67 remain in the application. Thus, claims 35-68 are active in the application. Reexamination and reconsideration of the application are respectfully requested.

In item 3 on page 2 of the Office Action, claims 35-40, 52-63 and 67-68 were rejected under 35 U.S.C. § 102(e) as being anticipated by Miller et al. (U.S. 5,920,701). Without intending to acquiesce to this rejection, independent claims 35, 52-53, 59-60 and 68 were each amended in order to more clearly illustrate the marked differences between the present invention and the applied references.

Accordingly, the Applicants respectfully submit that the present invention is clearly patentable over the applied references for the following reasons.

As described beginning at line 9 on page 2 of the substitute specification, conventional data transmission systems can use a plurality of communications circuits, but the conventional data transmission systems do not efficiently use an optimal communications circuit since data is unconditionally sent out to the same communications circuit regardless of the number of users that are receiving the data. Accordingly, the server in the conventional data transmission system transmits data on a communications circuit which is unsuitable for the transmission of the data when the bandwidth thereof is limited or when a number of users are requesting the same data.

Therefore, an object of the present invention is to provide a data transmission system and method which achieves an efficient use of a plurality of communications circuits in terms of transmission bandwidth and which can allow users to download the data from a server less expensively.

Claims 35, 52, 60 and 68 have each been amended to additionally recite that the plurality of communications circuits are connected in parallel between the server and the data circuit terminating device. Claims 53 and 59 have each been amended to additionally recite that the plurality of communication circuits are connected in parallel between the server and the plurality of data terminal devices.

The present invention, as recited in claims 35, 52, 60 and 68, achieves the above-described object by providing a data transmission system and method in which a server is

operable to transmit content data or a content data set, which includes a plurality of content data each varying in content, that is designated by a content reservation request which is issued from a data terminal device for the content data or the content data set. The content data or the content data set is transmitted by the server through one of a plurality communications circuits to a data circuit terminating device which is connected to the data terminal device for storing the content data or the content data set.

The data transmission system and method of claims 35, 52, 60 and 68 recite that each of the plurality of communications circuits is operable to communicate the content data or the content data set to the data terminal device. In addition, the data transmission system and method of claims 35, 52, 60 and 68 further recite that each of the plurality of communications circuits is operable to provide communication between the server and the data terminal device through different means.

Further, as recited in claims 35 and 60, either the server or any one of the plurality of communications circuits comprises a scheduling part which is operable to, based on both a time limit that is indicated by the content reservation request and predetermined communications information, determine a transmission time and select one of the plurality of communications circuits which provides the most optimal means for communication between the server and the data circuit terminating device so as to ensure that the content data or content data set is completely transmitted by the indicated time limit.

As recited in claims 52 and 68, in either the server or any one of the plurality of communications circuits, the data transmission method comprises determining, based on both a managed time limit and predetermined communications information, a transmission time and selecting one of the plurality of communications circuits which provides the most optimal means for communication between the server and the data circuit terminating device so as to ensure that the content data or the content data set is completely transmitted by the indicated time limit.

Accordingly, the present invention, as recited in claims 35, 52, 60 and 68, provides that each of the plurality of communications circuits is operable to communicate the content data or the content data set to the data terminal device, that each of the plurality of communications circuits is operable to provide that each of the plurality of

communications circuits is operable to provide communication between the server and the data terminal device through different means, and that a determination is made as to a transmission time and a selection is made as to one of the plurality of communications circuits which provides the most optimal means for communication between the server and the data circuit terminating device so as to ensure that the content data or the content data set is completely transmitted by the indicated time limit.

The present invention, as recited in claims 53 and 59, also achieves the above-described object by providing a data transmission system and method in which content data that is designated by a content reservation request issued from any number of a plurality of data terminal devices is transmitted from a server to the plurality of data terminal devices through a plurality of communications circuits. Claims 53 and 59 recite that the content reservation request indicates a download condition which is indicative of at least one of a transmission time and a transmission cost for downloading the designated content data.

The present invention, as recited in claims 53 and 59, also achieves the above-described object by providing a data transmission system and method in which content data that is designated by a content reservation request issued from any number of a plurality of data terminal devices is transmitted from a server to the plurality of data terminal devices through a plurality of communications circuits. Claims 53 and 59 recite that the content reservation request indicates a download condition which is indicative of at least one of a transmission time and a transmission cost for downloading the designated content data.

Further, claims 53 and 59 also each recite collecting from the number of the plurality of data terminal devices a corresponding number of content reservation requests each indicating a download condition for downloading the content data to the plurality of data terminal devices, respectively, determining, based on at least one managed download condition, a transmission timing and selecting one of the plurality of communications circuits which ensure that the content data transmitted under the at least one download condition is completely received by the number of the plurality of data terminal devices in accordance with the download condition indicated by the content reservation request received from each of the number of data terminal devices.

By additionally reciting that the plurality of communications circuits are connected in parallel between the server and the data circuit terminating device in claims 35, 52, 60 and 68, the additional recitation emphasizes that the plurality of data communication circuits between the server and a data circuit terminating device are connected in a parallel manner. Similarly, by additionally reciting that the plurality of communication circuits are connected in parallel between the server and the plurality of data terminal devices in claims 53 and 59, the additional recitation emphasizes that the plurality of data communication circuits between the server and the plurality of data terminal devices are connected in a parallel manner.

In other words, each of the plurality of data communication circuits is connected between the server and a data circuit terminating device in claims 35, 53, 60 and 68 (or a data terminal device in claims 53 and 59), and are parallel to each other in terms of connectivity.

More specifically, based on the transmission time limit specified by the user and predetermined communications information, such as the size of the requested content data, the transmission expenses of the communications circuits and the number of users requesting the same content data, the server selects, from among the plurality of communications circuits in parallel between the server and the data circuit terminating device (or the plurality of data terminal devices), the most optimal communications circuit for completely transmitting the requested content data.

With the feature of selectively using one communication circuit from among a plurality of communications circuits in accordance with the time limit and predetermined communications information, the data transmission system and method of the present invention is able to determine a communications circuit which provides the most suitable transmission of the requested data in a satisfactory and timely manner, thereby performing transmission at the lowest possible cost to the user.

Miller et al. discloses a system of scheduling data transmission in which a server 14 transmits content data to a replicated server 20 through a communications network 24 (Column 4, lines 38-40). The content data that is delivered to the replicated server 20 can then be relayed to a user terminal 22_1, 22_2 and/or 22_3 through another network 26 (Column 4, lines 56-69).

Miller et al. discloses that each of the networks 24, 26 can be a computer such as a WAN, LAN, Internet, wireless network, satellite network, a combination of these types of networks, or some other communication medium (Column 4, line 66 to Column 5, line 4). To one of ordinary skill in the art, it is understood that each of the networks 24, 26 may be fixedly implemented as any one of the aforementioned types of networks, or as a serial combination of any of the aforementioned types of networks.

Miller et al. clearly shows in Figure 1 that there is only path connecting between the server 14 and the replicated server 20. Therefore, Miller clearly discloses that there is only one circuit/network path 24, although the network path 24 may be implemented as one of the aforementioned network types. Similarly, there is only one path connecting between the replicated server 20 and each of the user terminals 22_1, 22_2 22_3.

Accordingly, Miller et al. clearly does not disclose or suggest a plurality of communications circuits connected in parallel between the server 14 and the replicated server 20.

Furthermore, the data transmission system of Miller et al. is aimed at the efficient use of network bandwidth by appropriately scheduling the transmission of content data from the server 14 to the replicated server 20 with a scheduler 10, which determines the amount of bandwidth that is available for content data transmission at times surrounding the desired completion time and the duration of time that such an amount of bandwidth is available (Column 2, lines 20-23).

Accordingly, Miller et al. clearly does not disclose or suggest a system or method for selecting an optimal circuit or network for such data transmission in accordance with the attributes associated with the user, requested content data and communications circuits since there is no disclosure of circuit/network paths which are connected in parallel between the server 14 and the replicated server 20. In other words, Miller et al. discloses that there is only one possible circuit/network path connecting between the server 14 and the replicated server 20, and therefore, according to the system of Miller et al., it is not possible to switch to or select another circuit/network path having superior suitability for the requested content data.

Therefore, Miller et al. clearly does not disclose or suggest a feature for selecting an optimal communications circuit from among a plurality of communications circuits

which are connected in parallel between the server 14 and the replicated server 20 in order to provide for an optimal transmission of the requested content data.

Accordingly, Miller et al. clearly does not disclose or suggest that the plurality of communications circuits are connected in parallel between the server and the data circuit terminating device, as recited in claims 35, 52, 60 and 68. Similarly, Miller et al. also clearly does not disclose or suggest that the plurality of communication circuits are connected in parallel between the server and the plurality of data terminal devices, as recited in claims 53 and 59.

Moreover, Miller et al. also clearly does not disclose or suggest a scheduling part which is operable to, based on both a time limit that is indicated by the content reservation request and predetermined communications information, determine a transmission time and select one of the plurality of communications circuits which provides the most optimal means for communication between the server and the data circuit terminating device so as to ensure that the content data or content data set is completely transmitted by the indicated time limit, as recited in claims 35 and 60.

Similarly, Miller et al. also clearly does not disclose or suggest determining, based on both a managed time limit and predetermined communications information, a transmission time and selecting one of the plurality of communications circuits which provides the most optimal means for communication between the server and the data circuit terminating device so as to ensure that the content data or the content data set is completely transmitted by the indicated time limit, as recited in claims 52 and 68.

Further, Miller et al. also clearly does not disclose or suggest determining, based on at least one managed download condition, a transmission timing and selecting one of the plurality of communications circuits which ensure that the content data transmitted under the at least one download condition is completely received by the number of the plurality of data terminal devices in accordance with the download condition indicated by the content reservation request received from each of the number of data terminal devices, as recited in claims 53 and 59.

Therefore, claims 35, 52-53, 59-60 and 68 are clearly not anticipated by Miller et al.

In item 24 on page 11 of the Office Action, claims 41-48 and 64-66 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Miller et al. in view of Berstis et al. (U.S. 6,182,122).

As demonstrated above, Miller et al. clearly does not disclose or suggest each and every limitation of claims 35, 52-53, 59-60 and 68. Berstis et al., however, does not cure the deficiencies of Miller et al. for failing to disclose each and every limitation of claims 35, 52-53, 59-60 and 68.

Berstis et al. discloses a data transmission system which seeks to avoid the problems that are associated with numerous users trying to download a number of selected web pages during off-peak hours to be able to browse such Web pages offline. The system of Berstis precaches selected web pages from periodically updated Web sites which are likely to be accessed by a user on the server. In response to offline browsing requests by subscribers, the pages or portions thereof which have not already been transmitted to the subscribers are prioritized by the likelihood of being accessed. The prioritization of Berstis is performed by utilizing statistical information, link relationships, and/or content. The pages are compressed in the server to minimize the amount of time that is required for the subscribers to retrieve the requested pages (see Column 3, lines 1-12 and Column 8, lines 12-51).

The system of Berstis includes a plurality of user units 102, 104, 106 and 108, a public switched telephone network (PSTN) 118 and a plurality of communication links 110, 112, 114 and 116 which respectively connect the user units to the PSTN 118. The user units 102, 104, 106 and 108 communicate with the PSTN 118 via their respective communication links 110, 112, 114 and 116, and through the PSTN 118, the user units are able to communicate with a server 120 via a communication link 122 (see Column 3, lines 55-67 and Figure 1).

However, Berstis clearly does not disclose or suggest that the plurality of communications links are connected in parallel between the server and the data circuit terminating device, as recited in claims 35, 52, 60 and 68. Similarly, Miller et al. also clearly does not disclose or suggest that the plurality of communication circuits are connected in parallel between the server and the plurality of data terminal devices, as recited in claims 53 and 59.

Even though Berstis discloses a plurality of communication links 110, 112, 114 and 116, the plurality of communication links can respectively provide communication with only one data terminal device. That is, as clearly disclosed in Figure 1 of Berstis, communication link 110 provides communication between only user unit 102 and the server 120, and, similarly, communication link 112 provides communication between only user 104 and the server 120. Accordingly, Berstis clearly does not disclose or suggest that a single user unit (a data terminal device) is able to communicate with a plurality of communications circuits.

Accordingly, similar to Miller et al., Berstis clearly does not disclose or suggest a scheduling part which is operable to, based on both a time limit that is indicated by the content reservation request and predetermined communications information, determine a transmission time and select one of the plurality of communications circuits which provides the most optimal means for communication between the server and the data circuit terminating device so as to ensure that the content data or content data set is completely transmitted by the indicated time limit, as recited in claims 35 and 60.

Similarly, Berstis also clearly does not disclose or suggest determining, based on both a managed time limit and predetermined communications information, a transmission time and selecting one of the plurality of communications circuits which provides the most optimal means for communication between the server and the data circuit terminating device so as to ensure that the content data or the content data set is completely transmitted by the indicated time limit, as recited in claims 52 and 68.

Further, Berstis also clearly does not disclose or suggest determining, based on at least one managed download condition, a transmission timing and selecting one of the plurality of communications circuits which ensure that the content data transmitted under the at least one download condition is completely received by the number of the plurality of data terminal devices in accordance with the download condition indicated by the content reservation request received from each of the number of data terminal devices, as recited in claims 53 and 59.

Therefore, Berstis clearly does not cure the deficiencies of Miller et al. for failing to disclose or suggest each and every limitation of claims 35, 52-53, 59-60 and 68.

Accordingly, no obvious combination of Miller et al. and Berstis would result in the inventions of claims 35, 52-53, 59-60 and 68 since Miller et al. and Berstis, either individually or in combination, clearly fail to disclose or suggest each and every limitation of claims 35, 52-53, 59-60 and 68.

Therefore, claims 35, 52-53, 59-60 and 68 are clearly patentable over Miller et al. and Berstis.

Furthermore, it is submitted that the clear distinctions discussed above are such that a person having ordinary skill in the art at the time the invention was made would not have been motivated to modify Miller et al. and Berstis in such as manner as to result in, or otherwise render obvious, the present invention as recited in claims 35, 52-53, 59-60 and 68. Therefore, it is submitted that the claims 35, 52-53, 59-60 and 68, as well as claims 36-51, 54-58 and 61-67 which depend therefrom, are clearly allowable over the prior art as applied by the Examiner.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is respectfully solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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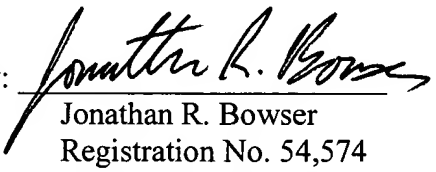
By: 

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